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EXAMINER

WOLLSCHLAGER, JEFFREY MICHAEL

ART UNIT	PAPER NUMBER
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1791

NOTIFICATION DATE	DELIVERY MODE
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12/11/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/562,047	Applicant(s) ESTUR ET AL.	
	Examiner JEFFREY WOLLSCHLAGER	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-37 is/are pending in the application.
- 4a) Of the above claim(s) 26-28 and 34-37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-25 and 29-33 is/are rejected.
- 7) ☒ Claim(s) 23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1791

DETAILED ACTION

Response to Amendment

Applicant's amendment to the claims filed September 18, 2008 has been entered. Claim 15 is currently amended. Claims 26-28 and 34-37 remain withdrawn from further consideration. Claims 15-25 and 29-33 are under examination.

Claim Objections

Claim 23 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 23 includes the same limitation recited in amended claim 15.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

Art Unit: 1791

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 15-18, 20-25 and 29-33 are rejected under 35 U.S.C. 103(a) as being unpatentable Pontiff (EP 0 450 205) in view of Al Ghatta et al. (US 6,306,921).

Regarding claims 15, 23 and 30, Pontiff teaches a method of producing a shrunken thermoplastic foamed bead (i.e. expanded pearl) (page 4, lines 16-18) having a continuous skin (page 6, lines 30-32) wherein a foamable/expandable composition of a thermoplastic polymer and a blowing agent/expanding agent are melt mixed in an extruder (Example 2), extruded to form a foamed/expanded strand and cooled and chopped to form the foamed/expanded bead (page 4, lines 19-38; page 7, lines 23-34; page 8, lines 24-54). Pontiff does not teach cooling the foamed material with liquid water.

However, Al Ghatta et al. teach a method of producing foamed beads of thermoplastic polyester resin wherein the beads are cooled in a water bath (col. 2, lines 53-58).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have modified the method of Pontiff and to have cooled Pontiff's foamed beads in a water bath, as suggested by Al Ghatta et al., for the purpose, as suggested by Al Ghatta et al., of controlling the surface crystallinity of the bead (col. 1, lines 26-31; col. 2, lines 53-58).

As to claim 16, Pontiff discloses that inert gases such as nitrogen and carbon dioxide may be employed as the blowing agent (page 4, lines 24-26; page 11, lines 44-46). As set forth in the original disclosure, published as US 2007/0036967, paragraph [0027], nitrogen and carbon dioxide meet the limitation.

As to claim 17, Pontiff teaches that solid materials that decompose to form a gas, such as azodicarbonamide, may be employed as the blowing agent (page 4, lines 24-26; page 13,

Art Unit: 1791

lines 27-32).). As set forth in the original disclosure, published as US 2007/0036967, paragraph [0028], the decomposing blowing agents, such as azodicarbonamide meet the limitation of a pore-forming agent.

As to claim 18, Pontiff teaches the blowing agent may be a volatile compound such as hydrocarbons, halogenated hydrocarbons, or various other volatile organic compounds (page 4, lines 24-26; page 8, lines 24-27; page 11, lines 40-50; page 12, lines 5 and 6).

As to claim 20, Pontiff teaches the thermoplastic material may be a polyamide (page 4, lines 26-30).

As to claim 21, Pontiff teaches nucleating agents and processing aids may be employed (page 7, lines 23-25; Example 1).

As to claims 22 and 29, Pontiff teaches conventional additives such as fillers and anti-static agents may be employed (page 14, lines 40-42).

As to claims 24 and 31, Pontiff teaches the method of claim 15 as set forth above. Additionally, Pontiff teaches the size of the beads is determined by the size of the holes in the die and the speed of the cutting knife (page 8, lines 37-44) and further discloses die holes having a 1.6 mm diameter (Example 2). As such, while Pontiff suggests the size of the beads may be readily controlled and optimized as a function of die hole size and cutting speed, Pontiff does not provide a discussion regarding the amount of die swell or the relative amount of ensuing shrinkage necessary to conclude the size of the actual bead. However, Al Ghatta et al. teach the diameter of foamed beads suitable for molding is between 1 mm and 15 mm (col. 1, lines 4-6; col. 2, lines 34-35).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have modified the method of Pontiff and to have formed

Art Unit: 1791

foamed beads between 1 mm and 15 mm, as suggested by Al Ghatta et al., for the purpose of producing a foamed bead having a size suitable for subsequent molding applications.

As to claims 25, 32 and 33, Pontiff teaches shrunken foam beads having densities as low as 12.8 kg/m^3 may be produced (page 7, lines 50-55). It is noted that 12.8 kg/m^3 equals 0.0128 g/cm^3 .

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pontiff (EP 0 450 205) in view of Al Ghatta et al. (US 6,306,921), as applied to claims 15-18, 20-25 and 29-33 above, in view of Amano et al. (US 5,234,640).

As to claim 19, the combination teaches the method of claim 15 as set forth above. Pontiff does not teach that the blowing agent comprises a chemical compound that can react chemically with the polymer by heating to generate a gas. However, Amano et al. teach a method of producing foamed thermoplastic materials wherein they disclose that aromatic polycarbonate is known to be a blowing agent and suggest that it is an equivalent alternative of azodicarbonamide, nitrogen, carbon dioxide, and various other blowing agents (col. 4, lines 11-30). The examiner notes that in the original disclosure, published as US 2007/0036967, paragraph [0030], polycarbonate is disclosed as a blowing agent that meets the instant limitation.

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have modified the method of Pontiff and to have employed polycarbonate as a blowing agent, as suggested by Amano et al., since Amano et al. suggest polycarbonate is an equivalent alternative blowing agent known in the art to be suitable for forming a foamed product (MPEP 2144.06-2144.07).

Response to Arguments

Applicant's arguments filed September 18, 2008 regarding the section 102 rejection over Pontiff have been fully considered, but are moot in view of the new grounds of rejection necessitated by the amendment to claim 15.

Applicant's arguments filed September 18, 2008 regarding the rejection based upon the combination of Pontiff in view of Al Ghatta et al. have been fully considered, but they are not persuasive. Applicant argues that Al Ghatta et al. do not disclose or fairly suggest modifying Pontiff to arrive at the claimed invention. This argument is not persuasive. For the reasons set forth above, the examiner maintains that Al Ghatta et al. provide a teaching and motivation to cool the material of Pontiff with water (i.e. controlling surface crystallinity).

Further, applicant generally argues that the combination does not reflect proper consideration of all the words in the claims. This argument is not persuasive. The examiner submits that the combination suggests performing step a) followed by performing step b). Further, the examiner notes that the expanded material is formed in step a). Accordingly, cooling using a liquid and chopping, which together form step b), can be performed in any sequence in step b) and still meet each and every word of the claim. The examiner submits that this interpretation is consistent with the instant specification, page 7, line 29-page 8, line 15, in the embodiments where the die plate and the chopping device are not in a water-filled chamber (e.g. "hot chopping"). Further, as acknowledged in the instant disclosure, underwater granulators are known in the art. The examiner submits the claims would need to be amended to overcome the art of record.

Art Unit: 1791

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEFFREY WOLLSCHLAGER whose telephone number is (571)272-8937. The examiner can normally be reached on Monday - Thursday 6:45 - 4:15, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1791

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. W./

Examiner, Art Unit 1791

December 11, 2008

/Monica A Huson/

Primary Examiner, Art Unit 1791